CHARACTERIZATION OF BIOCHAR FROM DIFFERENT TYPES OF BIOMASS AND DIFFERENT HEATING TEMPERATURE LEVELS

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ABSTRACT

Biochar is an organic soil conditioner that comes from burning organic waste residues. The organic waste used can vary, resulting in different biochar properties and composition. From these organic wastes, a characterization test of biochar is needed to determine the content of biochar originating from different organic wastes. The aim of this research is to determine the quality and influence of the types of organic materials originating from rice husks, corn cobs and coconut shells heated to different temperatures. The method used in this research was a factorial Completely Randomized Design (CRD) with two treatments, namely the type of biomass and different pyrolysis temperatures. The biomass treatment is B1: rice husks, B2: corn cobs, and B3: coconut shells. The heating temperature treatments are T1: 300℃, T2: 500℃, and T3: 700℃. The research results showed that the combination of biomass treatment and different heating temperatures had an interaction between biomass and heating temperatures with the parameters pH H_2O, water content, volatile matter, ash content, bound carbon, and cation exchange capacity. The combination of treatments to make biochar that is suitable and best is coconut shell at a temperature of 300℃ (B3T1).

Keywords : biochar, coconut shells, corn cobs, rice husk